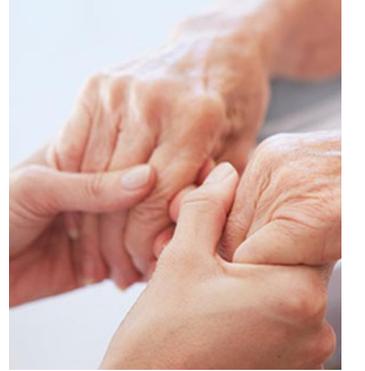




Blood-based Biomarkers

A practical approach to
use in clinical care



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DISCLOSURE

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Goal: A practical,
case-based overview:
How to think about
blood biomarkers.



- Caveat: A very quickly changing field.
- Much of what I say may be out of date in 18 months, 12 months, or even 6 months.
- Focus today: super-practical cases which are geared for the (non-specialist) clinician.



Spectrum



Normal aging ... Mild cognitive impairment ... Dementia

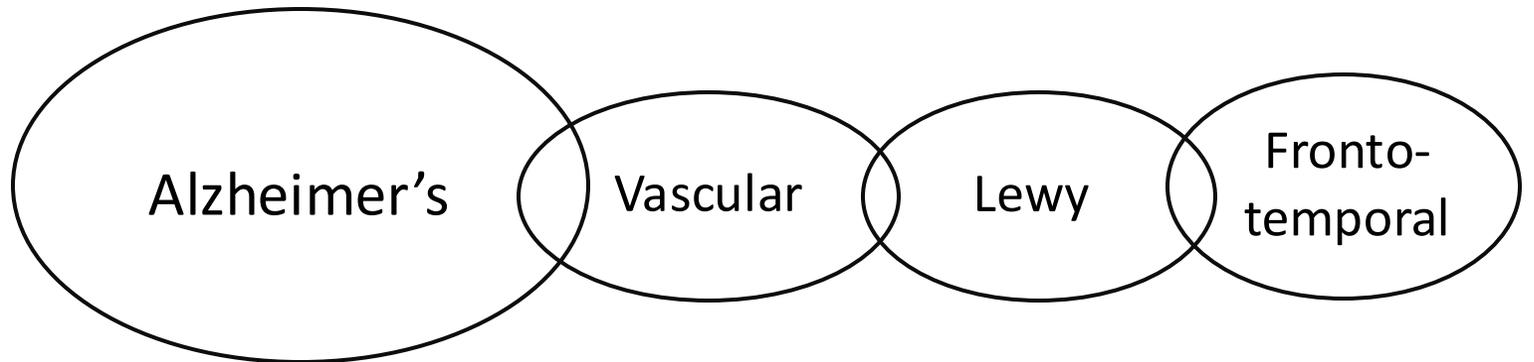
Slower to remember names. Why did I come up the stairs?

Lose ability to process and retain information. Ask same question over and over. Harder to complete complex tasks. But still **independent with activities.**

Lose ability to do activities independently: such as cooking, driving, shopping, or dressing.



Etiologies

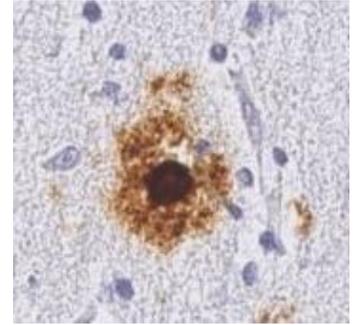


The Diagnosis of Alzheimer's



- The diagnostic process for AD is still fraught and can often be quite uncertain (even in the hands of the world's best experts).
- The majority of patients, especially those over age 80, in truth have mixed forms of dementia. (overlapping clinical and autopsy features)
- Amyloid PET scans of the brain, or LP for CSF testing, have emerged as helpful tools (but their precise roll + insurance coverage still fuzzy.)
- Blood-based biomarker for Alzheimer's: Newly approved. Accurate. (with some error) of predicting: what will the amyloid PET scan show?

Alzheimer's Disease and Amyloid



- There's still a lot we don't know about the pathophysiology of Alzheimer's disease. We have many clues. Many leads. But there's still a lot of uncertainty about what it all means.
- Many healthy people with amyloid plaque in their brains go on to live long and healthy lives. They never develop dementia.
- Many people seem to have Alzheimer's disease as the best fit for their impairment, but they may not have a large amyloid burden.
- *If amyloid is present in the brain*, anti-amyloid drugs have been shown to slow the progression of cognitive impairment by 4-6 months.

**Let's think about some situations
blood biomarkers might be used**





Case #1

A 78 year old woman is diagnosed with mild cognitive impairment.

She expresses interest in learning more about possible anti-amyloid therapy.

So she undergoes work-up for eligibility, with the question: is her MCI due to Alzheimer's?

Roll for blood-based biomarker?





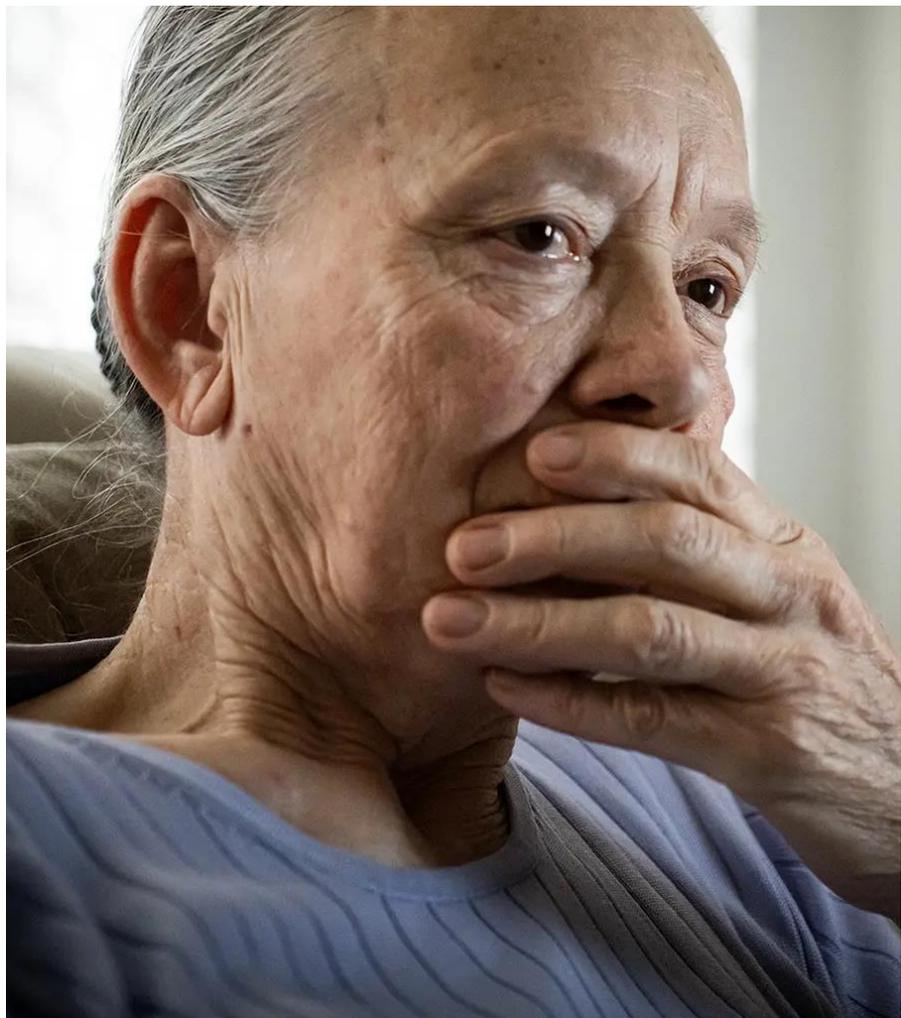
Case #2

A 72 year old man has a family history of dementia and is anxious that it sometimes takes longer for him to remember someone's name, then later it comes to him.

He's heard there is a blood test for Alzheimer's and is worried that he is at risk.

Roll for blood-based biomarker?





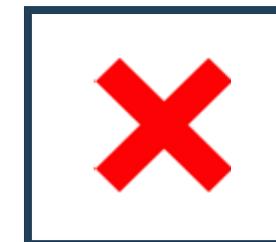
Case #3

A 75 year old woman presents to her PCP with general memory concerns.

During her initial evaluation her PCP orders blood work including TSH and B12 levels.

Her daughter asks isn't there also a blood test for Alzheimer's?

Roll for blood-based biomarker?





Case #4

71 year old woman undergoes cognitive evaluation for memory concerns. MoCA is 26, borderline low. Her husband thinks she's less organized, but hedges on if this is truly a change. Provisional diagnosis is MCI.

Takes apixaban, so not candidate for anti-amyloid drug, and not sure she'd want it even if she was.

Roll for blood-based biomarker?



Summary



- ✓ Evaluating for anti-amyloid treatment (often in specialty setting)
- ? New diagnosis MCI/ or borderline findings: some prognostic help.
- ✗ Initial work-up, before diagnosis. Or patient without impairment.



Key Teaching Points



- Blood-based biomarkers are getting better at predicting what someone's amyloid PET scan result will be.
- But the clinical role of PET scanning is still a bit uncertain, especially for use in the primary care setting.



Key Teaching Points



How to interpret a BBM result, and talk to patients about what exactly it means (and doesn't mean!) is extremely complex and psychologically very hard and confusing.

There is a clear, growing roll for BBMs *in specialty care*, especially to streamline an evaluation for whether anti-amyloid therapy might help.

Still very limited – if any – use by PCPs (at the present time). Maybe in future? But only AFTER a diagnosis of MCI is made, and only if there's quick access for patient to see specialist **soon** if biomarker's abnormal.



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